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Examiners' Report
Principal Examiner Feedback

Summer 2024

Pearson Edexcel Level 3 Certificate
In Mathematics in Context (7MC0) Paper 1

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Principal Examiner Report – 7MC0 Paper 1

Introduction

Candidates appeared well prepared for this exam with most attempting all the questions and showing appropriate coverage of the content had been well practised. There was no evidence of students being disadvantaged by lack of equipment, such as calculators, which was pleasing to see.

Typical of many Mathematics exams, candidates often struggle when they need to articulate themselves in explanation questions, and this remained to be the case here. Responses were often lacking clarity, and in many cases were contradictory. Centres are advised to spend more time discussing the mathematics and practicing explaining would benefit many.

Report on Individual Questions

Question 1

As is quite common on the comprehension paper, the first question involved mathematics to be carried out on values pulled from the source booklet. The majority of candidates were able to extract the correct information and gain some good marks. Part (b) proved a bit of a challenge, with students often not being able to extract the correct time period from the graph, and part (c) was often 1 mark only. Many not able to use the values correctly once extracted.

Question 2

Despite the formula being provided, many candidates were unable to extract it for use on this standard deviation question. Of those who did, many did well and scored most of the marks in part (a). It was not uncommon, however, to see candidates not using the formula correctly. Errors normally came in the calculation of fx^2 with candidates often finding $(fx)^2$ instead and therefore only being able to gain 1 mark.

In part (b) most candidates earnt at least one mark, with a fairly familiar question comparing distributions. Like on GCSE however, many struggle to add context to their explanation and therefore could only gain 1 mark.

Question 3

Part (a) was answered well by most. A variety of approaches were seen with almost all gaining the credit. In part (b), most gained the first mark for extracting the correct values of 269 million and 6%. Unfortunately, and like at GCSE, many struggled with the reverse percentage aspect of the question, and it was common to see them finding 94% rather than dividing by 1.06 .

Question 4

In part (a) candidates were required to write a formula for a cell on a spreadsheet. The majority understood the mathematics behind the formula, and were able to gain the first mark. However, it is clear that many are not familiar with the notation used in a spreadsheet such as use of '/' rather than '÷' and the need for an '=' sign at the beginning of the formula. Some candidates used numerical values rather than cell names and they were unable to gain any credit.
Part(b) required students to analyse two graphs, and again their ability to articulate caused many to lose the mark. Part (c) was typically answered well, with most able to use the graph correctly to predict.

Question 5

Part (a) was very familiar, and most gained marks for being able to draw a cumulative frequency graph. As is always the case some did plot on the midpoints rather than the upper bound, but generally this part was answered well.
Part (b) required them to use the graph to extract a value and then find a percentage. Again, this is a familiar question from GCSE and was typically answered well by the majority of candidates. Part (c) proved more of a challenge to many. Finding the median from the graph was a challenge to many as they often read off at 1500 (half of the value on the axis) rather than at 1350. These candidates did still often gain one mark for using their median correctly with $2.54.

Question 6

Both sections of part (a) were answered generally well, with most extracting the correct information from the source booklet for (a)(i) and dividing by 365 to gain the mark. In (a)(ii) again there was plenty of success with many being able to give a suitable explanation to support the given claim.
Part (b) was more difficult, but again, many gained credit for extracting suitable values from the source booklet. Those who acknowledged the need to work with proportion (as the question asked) went on to score 1 or even

quite often 2 further marks. Those who missed the reference to proportion unfortunately scored no more than 1.

Question 7

Many candidates will have been disappointed to only see 3 marks assigned to box plots as it is clearly an area they are comfortable in. The majority gained 1 mark in part (a) for recognising the values as outliers, and a good number also gained both marks in part (b) for a correct estimate of the Inter-Quartile Range. The scale however on the box-plot proved a little challenging for some resulting in them losing marks in part (b)

Question 8

In part (a) candidates had to use the equation of the regression line to show the given values of a and b. Finding b was normally successful with the vast majority finding the correct 2 values to divide.
The process to find a proved more difficult and a loss of marks often came down to candidates dividing by 12 to find the mean (the number data points in the table) rather than 10 (the number of years), so of the 4 marks on offer, many lost the second.
In part (b) most were able to substitute the correct values into the given equation and gain the correct value. Those who didn't often chose a different value than the year (2021) to substitute for x.
Part (c) required students to use figures to support their answer and many did not, and as a result gained no credit. This is a lesson in reading questions carefully to ensure that they are meeting the criteria fully.

Question 9

A very familiar question and one in which candidates seem to do well. As ever with Spearman's rank errors occur in the ranking of the second data column (here the "Advertising Spend"), and in the squaring of the differences (when the difference is negative). However, the mark scheme is slightly different this year and an accuracy mark has been replaced with a method mark. This allowed examiners to give more credit to those who knew what they were doing, but who perhaps made some minor errors. Overall, a very well-done question.
Part (b) required them to interpret their value, and this was again done well. However, it is worth noting for candidates that when doing this they must refer to the value and what that represents. Correct work here led to a value close to 1 representing a strong positive correlation.

Question 10

Part (a) of this question was the one most likely to be seen as blank by examiners, with many students not being able to provide a suitable function to represent the model.
Part (b)(i) should be familiar to those who took higher GCSE and there was some good evidence of candidates drawing tangents and attempting to find the gradient. Care is needed when drawing tangents to ensure it meets the graph at the correct value, and like with many graph questions, difficulty reading the scales accounted for some losing marks. (b)(ii) was not very well answered with candidates missing the 'rate of change' aspect to their answers. This is further evidence of them struggling to articulate themselves mathematically.
Part (c) was a nice end to the paper and most gained some or often all three of the marks for correct substitution into the given formula. It was really pleasing to see candidates still going at the end of the paper and shows resilience and good preparation.

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